



Testimony of Joel Brammeier, President and CEO, Alliance for the Great Lakes

Permanent Prevention of Asian Carp in the Great Lakes

Subcommittee on Water Resources and Environment

Committee on Transportation and Infrastructure

Hon. Eddie Bernice Johnson, Chairwoman

Hon. John Boozman, Ranking Member

February 9, 2010

Introduction

Madam Chair, thank you for inviting me to appear before this subcommittee to discuss the urgent threat posed to the Great Lakes by Asian carp. My name is Joel Brammeier, and I am the president and CEO of the Alliance for the Great Lakes. Formed in 1970, the Alliance is the oldest independent citizens' Great Lakes protection organization in North America. I am also a member of the steering committee of the Healing Our Waters – Great Lakes Coalition.

I and dozens of other dedicated citizens and experts have worked for many years in an advisory capacity to the U.S. Army Corps of Engineers and Illinois Department of Natural Resources to support the protection of the Great Lakes from invasion by bighead and silver carp. As a member of the Dispersal Barrier Advisory Panel,¹ I have offered my voice for nearly the last decade to a team of professionals that has provided sound advice, helpful critique and robust discussion among businesses, non-governmental organizations and agencies at all levels of government with a single task at hand: to stop Asian carp from establishing in the Great Lakes.

We can accomplish that task. But only if every decision we make today, tomorrow and next week is dedicated to one purpose: the permanent prevention of new invasive species movement into the Great Lakes via the Chicago Waterway System (CWS).

Creating an Artificial Connection

Behind nearly every invasive species in the Great Lakes are the hands of human intervention, and Asian carp are no different. The Great Lakes are connected to multiple other saline and fresh water bodies via artificial canals constructed during the 19th and 20th century. The Chicago

¹ <http://seagrant.wisc.edu/AIS/Default.aspx?tabid=393>.

Sanitary and Ship Canal (CSSC) and Portage Canal in Wisconsin connect Lake Michigan to the Illinois River, while multiple canals in Ohio connect Lake Erie to the Ohio River. The various canals of the New York State Canal System (NYSCS) and the Welland Canal not only link Lake Erie to the Hudson River and Atlantic Ocean, but also provide a western route from Lake Ontario to Lake Erie that is otherwise naturally blocked by Niagara Falls. Zebra mussels and round gobies have spread from the Great Lakes to the Mississippi River via the CSSC, while blueback herring, white perch and sea lamprey have all likely invaded the upper Great Lakes via the NYSCS.

In Chicago, the motivation for creating the artificial connection to the Mississippi was protection of the city's drinking water. Between 1860 and 1900, the North and South Branches of the Chicago River became a focus of industrial activity, including meat packing, slaughterhouses, distilleries and lumber mills. As the city grew rapidly, untreated sewage from homes and industries flowed to the rivers and into Lake Michigan, the primary source of drinking water for Chicago. The rivers became open sewers hosting bacteria and viruses causing typhoid, cholera, dysentery and other waterborne diseases.

In response, the Illinois General Assembly adopted the Sanitary District of Chicago Enabling Act in 1889. The legislation led to the creation of the Sanitary District of Chicago, the predecessor of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). Soon after, its board of trustees, subscribing to the popular 19th century belief that "dilution is the solution to pollution," reversed the flows of the North and South Branches of the Chicago Rivers and the Calumet River away from Lake Michigan, and diverted clean lake and polluted river water downstream toward the Mississippi River.

By 1900, the man-made CSSC connected the South Branch of the Chicago River to the Des Plaines River. The artificial North Shore and Calumet-Sag Channels were completed in 1910 and 1922, respectively. Chicago's raw sewage, industrial wastes, and urban storm water were now directed away from the Great Lakes into the Des Plaines, Illinois, and Mississippi Rivers, with the unintended consequence of binding the ecology of the Great Lakes and Mississippi River watersheds and leading a potentially devastating fish across the threshold of Lake Michigan.

The Chicago Waterway System

The highly engineered combination of natural rivers and artificial canals continues to serve its intended 19th century purpose of disposing of wastewater, but 120 years of use have added layers of complexity. Many of the natural portions of the system have been channelized with attendant loss of natural habitats. The state of Illinois is authorized by the U.S. Supreme Court to stream up to 2.1 billion gallons of Great Lakes water per day – much of it as treated wastewater - past the channel walls of steel and limestone. The CWS is home to a recreational boating network with 35 – 70,000 recreational vessels moving between Lake Michigan and the inland waterways each year. Dozens of boat operators make their living moving tourists between downtown Chicago and Lake Michigan. The system supports a steady, although not

growing, annual traffic of 20-25 million tons of bulk commodities such as coal, petroleum products and construction materials.²

In short, the Chicago metropolitan area has built itself with pride on the backbone of a 19th century engineering marvel bridging two great watersheds. This connection between the waterways and Lake Michigan was once seen as critical to opening the continent to trade and to feed in cool, clean Lake Michigan water to keep the rivers from reverting to open sewers. But the stark reality that this complex system created an aquatic superhighway for the jumbo-sized Asian carp and other invasive species to travel between Lake Michigan and Mississippi watersheds calls the question of whether this connection is as critical today as it seemed 10, 50 or 120 years ago.

The Level of Threat

When deciding whether to permit water pollution, regulators consider the ability of the environment to absorb the pollution against the potential impact on the health of humans, fish and wildlife. Conventional pollution permits take a “damage control” approach; there are dozens of pollutants that the Great Lakes tolerate in small amounts. Other more pernicious contaminants, such as mercury, are targeted for reduction and even elimination.

For some pollutants, however, the rules of damage control do not hold. Zero tolerance is the only appropriate response to the biological pollution of invasive species. There is no diluting their impacts to some unnoticed background level. By definition, these organisms establish in an ecosystem by outmuscling native species for food and reproductive opportunities. Once established, the chances of successful control are minimal.

Great Lakes fishery experts before this subcommittee today can speak thoroughly to the threat posed to the Great Lakes by Asian carp. I will summarize my perspective with three simple facts:

- In the Mississippi River basin where low-value Asian carp have invaded, they have established in great numbers and outcompeted native fish (Chapman 2003).
- U.S. (Kolar et al 2005) and Canadian (Mandrak and Cudmore 2004) risk assessments indicate that the Great Lakes have multiple carp-friendly habitats, including Green Bay, west Michigan, Saginaw Bay, Lake St. Clair, and western Lake Erie. These are some of the most popular boating and fishing spots in the region.

² All data on navigation are published by the U.S. Army Corps of Engineers Waterborne Commerce Statistics Center. Data were extracted and organized from Corps databases via a proprietary program written by Scudder Mackey of Habitat Solutions, Inc. and are available upon request. Original databases are available for public download at <http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm>.

- The industries most at risk from an Asian carp invasion – sportfishing and recreational boating – contribute \$7 billion and \$16 billion (Great Lakes Commission 2007) annually, respectively, to the economies of the Great Lakes states.

Compounding these risks is the critical fact that, based on expert judgment that the eDNA monitoring method indicates live fish presence (Lodge 2009), carp are very likely already in the waters of Lake Michigan. This evidence demands that federal agencies immediately set a goal of beating back carp populations to zero as far from Lake Michigan as possible before they are able to establish in the Great Lakes

Ecological Separation

The presence of Asian carp in the Great Lakes and knowledge of the impacts of past invasions creates a strong incentive to act now to permanently protect both the Great Lakes and Mississippi River. Even if existing electrical barriers in the CSSC operate as designed, they will not last forever, nor will they ever achieve guaranteed 100 percent effectiveness. With the passage of time – through human error, an accident, wear and tear, or a natural disaster – the effectiveness of the barriers will be compromised.

The permanent solution is not reliance on technology, but on what we call “ecological separation,” or no movement of live organisms between the Great Lakes and the Mississippi River via the canals – up to and including permanent physical barriers in the CWS. At first blush, in face of billions of gallons of water and millions of tons of cargo, this simple idea seems audacious.

However, a close look at water flows and navigation patterns suggests otherwise. Sewage treatment upgrades have diminished the need to maintain a connection to Lake Michigan water to maintain river water quality; the volume of these “discretionary diversions” has trended down for the last 20 years and will continue to decrease. Likewise, the need to allow combined sewage to flow into Lake Michigan for flood control has dramatically declined and will continue to do so with the completion of the local “Deep Tunnel” project. Commodity deliveries and loading via barge are confined in bulk to the Chicago Sanitary and Ship Canal and lower portions of the Calumet River, with comparatively little traffic moving through downtown Chicago or into the open waters of Lake Michigan. Barely more than 1,000 recreational boats move through Lockport lock annually. We can no longer afford to assume that 71 miles of canal in a century-old layout are required to get the job done, particularly when the job creates a massive external liability for the Great Lakes.

Permanent Prevention of Asian Carp in the Great Lakes
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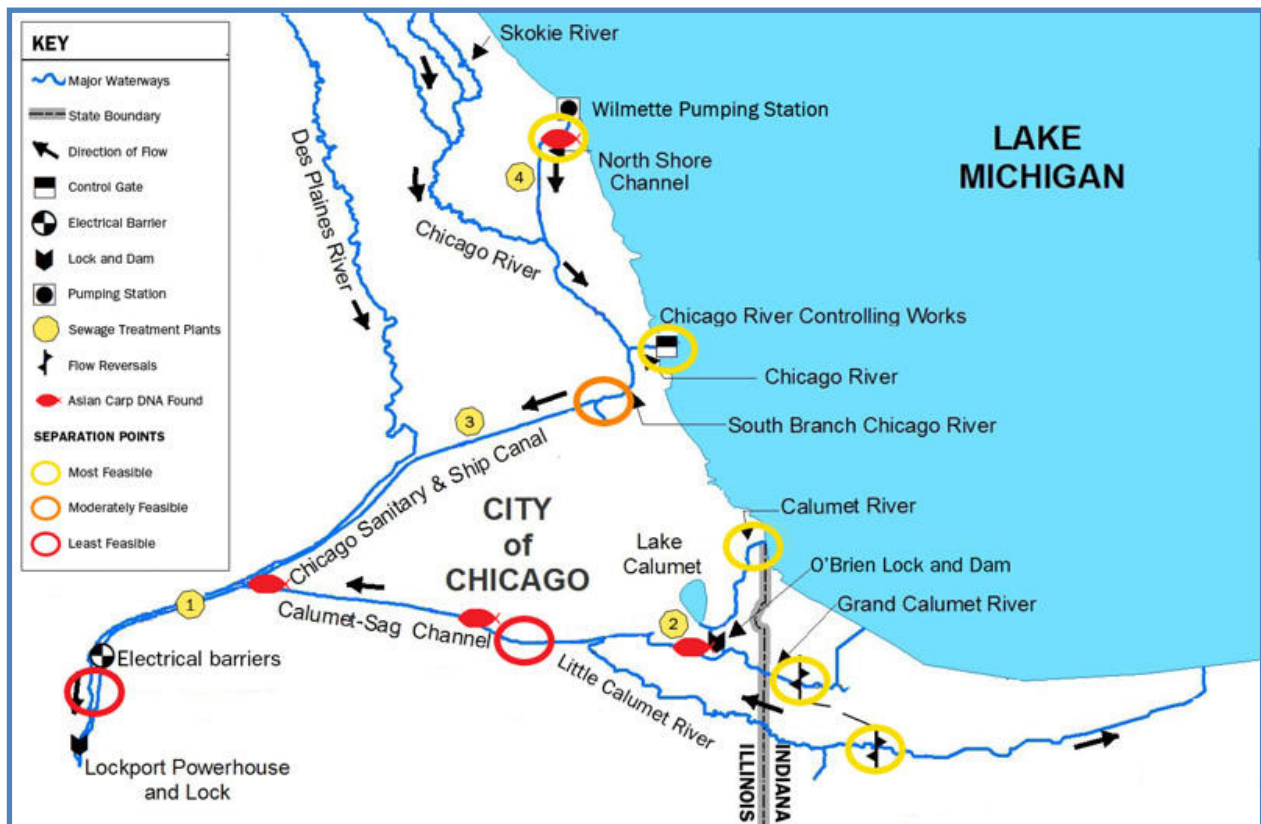


Figure 1: Potential locations of a physical separation of the Great Lakes and Mississippi River, 1/15/2010.

In light of these findings, a feasible separation scenario will:

- Stop all life stages of aquatic organisms moving between the Great Lakes and Mississippi River via the CWS;
- Accommodate the vast majority of commodity traffic within the waterways, as only a fraction of that traffic enters Lake Michigan;
- Provide new methods of moving recreational boaters between the Illinois River and Lake Michigan;
- Anticipate very occasional overflows into Lake Michigan to prevent local flooding, while improving the water quality of the lake and waterways; and
- Serve as a one-time payment for 100 percent effective, permanent protection against invasives.

Separation is not a new concept. In 2003, a local, state and federal interagency group hosted the Chicago Aquatic Invasive Species Summit for the express purpose of setting an agenda “beyond the barriers.” This conference of more than 70 experts from around the region and the world agreed that stopping water movement between the Great Lakes and Mississippi River was the only way to interrupt the stream of live organisms (City of Chicago 2005).

Two key steps were taken to follow up on this recommendation. In recognition that the separation effort was at the beginning of a long road of research and evaluation, the Great

Lakes Fishery Commission and Great Lakes Fishery Trust supported an initial “prefeasibility” analysis of separation. This work, authored by a team including myself, Scudder Mackey (University of Windsor/Habitat Solutions, Inc.) and Irwin Polls (Ecological Monitoring and Assessment) identified several locations on the CWS that should be targeted for a full feasibility analysis (Figure 1). Our research reinforced the need to pursue a policy of ecosystem separation: in a series of interviews with stakeholders from around the Great Lakes in the U.S. and Canada, including decision-makers at all levels of government, it became clear that a goal of 100% effectiveness in stopping species movement was critical to the effort.

Stakeholders also recognized that the electrical barriers alone were unlikely to provide the permanent protection desired for the lakes. Knowing that any changes to the waterway would require significant federal investment and oversight, the Alliance and many others sought the necessary authorization for the U.S. Army Corps of Engineers to perform a Great Lakes and Mississippi River Interbasin Transfer Study, which became part of the *Water Resources Development Act of 2007*. While we are encouraged that the Corps has committed to developing an environmental impact statement for this work, we are concerned that few advance steps have been taken to tap the substantial expertise on the issue outside of federal agencies nearly two years after the authorization passed. We cannot afford to miss an opportunity to bring the best minds to bear on solving this problem.

Recommendations

We do not yet have a single permanent solution in hand. Each choice we make today is an opportunity to insure the Great Lakes against an Asian carp invasion. The smarter the choice, the longer the insurance policy extends and the more time we have to find and build a permanent solution. The policy and management actions below³ are our best opportunity to keep the few carp already in Lake Michigan from becoming a permanent problem for all of the lakes:

Policy Needs

1. Federal and state agencies must immediately describe a short-term contingency plan with clear and firm triggers for action. All actions should flow from a singular goal of beating back existing populations of carp to zero as far from Lake Michigan as possible.
2. The U.S. Army Corps of Engineers must expedite the Chicago portion, including all National Environmental Policy Act (NEPA) requirements, of the Great Lakes and Mississippi River Interbasin Transfer Study so that it is completed by September 30, 2011 instead of 2014 as is currently expected. Implementation should begin in fiscal year 2012.

³ Adapted from recommendations developed by the Healing Our Waters-Great Lakes Coalition, available from Chad Lord, Water Program Director, National Parks Conservation Association.

3. Provide clear agency authority to implement emergency actions through a public Memorandum of Understanding between agencies or some other public mechanism, with U.S. EPA in a lead role given its leadership in coordinating government action through the Great Lakes Interagency Task Force.
4. The Corps must complete the Dispersal Barrier Efficacy Study by August 2010. Immediately begin implementation of the flood control measures recommended in the Study's first interim report for completion by fall 2010.

Management Needs

1. Locks and sluice gates leading to Lake Michigan must be operated and managed in a way that reduces further transfer of Asian carp into Lake Michigan, including temporary closure if appropriate. Temporary changes in lock operations can slow movement of additional Asian carp toward Lake Michigan. Contingency plans should address needs for flood control and emergency response.
2. Operate the Dispersal Barrier System at optimal power and frequency and expedite both the completion of Barrier IIB and upgrade of Barrier I by the end of summer 2010.
3. Immediately install interim barriers in the Grand Calumet and Little Calumet Rivers, as necessary, to prevent Asian carp from migrating to Lake Michigan through Indiana.
4. Eliminate any risk of Asian carp bypassing the Dispersal Barrier System by waterway traffic, including the strict enforcement of the Coast Guard's prohibition of ballast and bilge water transfers through the dispersal barriers.
5. Expand eDNA testing and consider eDNA results as actionable indicators of live Asian carp presence.

I encourage this subcommittee to work with the administration to ensure the fulfillment of these needs as soon as possible.

Conclusion

The false choice between Great Lakes protection and a freeflowing economy has taken center stage in the public debate about the urgent need to protect the Great Lakes from Asian carp invasion. Running a close second is the contention that threat to property, life and limb by flooding and disease is a precondition of changing how we use the Chicago Waterway System. This does a disservice to the reality on the ground: that the Great Lakes and Mississippi River are being held hostage by outmoded infrastructure and dated assumptions that how business gets done is the way business has to be done.

A rare opportunity stands before two great waters of the United States today. We understand the damage that has already occurred. We can predict the irreparable harm to the Great Lakes if we fail. We have the tools and knowledge in hand to stop the problem before it starts. We cannot accept the outdated zero-sum thinking of industry or environment, clean water or invasive species. The original engineering feat of the Chicago Waterway System protected the Great Lakes, but transferred costs to others – costs that were not entirely apparent in 1890 but are a hole in the wallet today. Those with the vision to see and will to transform understand that this backbone of the largest Great Lakes city must either stretch and strengthen with time, or collapse under its own weight. I look forward to working with this subcommittee and everyone engaged on this matter to create a sustainable legacy for the CWS that outlasts both me and the original project. Madam Chair, thank you for holding this hearing and I look forward to assisting on any actions this subcommittee can take to support this effort.

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